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THE FOREST WORKER

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FOREST SERVICE
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THE FOREST WORKER

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ANNOUNCEMENTS

Forest Service to Exhibit at the Sesquicentennial

At the Philadelphia Sesquicentennial Exposition, scheduled to open June 1 and close December 1, the Forest Service will supply one unit of the Department of Agriculture exhibit in the Transportation Building. The service has been allotted a space 92 feet long and 15 feet deep. In this space will be depicted four phases of the history of this country's forests. Each of the four sections will consist of a curved, panoramic, painted background and a foreground of actual trees and other accessories built up to and merging with the background. Large white pine trees are being shipped in from the Allegheny National Forest for the foreground work.

The first scene will show a primeval forest of white pine such as met the eyes of the first white settlers in America. The second will show destructive lumbering. Stark, denuded hills in the distance will explain the deserted lumbering town in the middle distance, and the foreground will be strewn with a wasteful jumble of slash. The third picture will be a forest blackened and smoking from recent fire, charred young trees in the foreground raising the question of where the forests of the future are to come from. The fourth scene will attempt to answer that question, showing scientific forest cutting and planting, fire prevention, and careful utilization. One feature of this section will be a prosperous small lumbering town in the midst of a productive forest region, offering vivid contrast to the deserted town in the second group.

Supplemental exhibits and enlarged photographs will give in more detail the points stressed in the main exhibit.

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Wood-Gluing and Kiln-Drying Courses at Madison

Short courses in the gluing of wood and the kiln drying of lumber will be given June 7-12 and June 14-25, respectively, at the U. S. Forest Products Laboratory, Madison, Wis. The gluing course is given for executives, foremen, and others from shops or factories where glued wood products are manufactured and for those making or selecting glue and gluing equipment. It covers, among other points, the characteristics of different glues and methods of gluing the common woods, and includes demonstrations in mixing different kinds of glues and in making and testing glued joints. The attendance limit is 16 and the fee \$100.

The kiln drying course is for executives, foremen, and kiln operators engaged in the artificial seasoning of wood. The instruction covers the design, construction, and equipment of the types of kilns used for drying various commercial species, characteristics of different species as related to proper drying, drying defects and how to prevent them, and comparison of the effects of kiln drying and air seasoning. Lumber green from the saw will be dried in the demonstration kiln run which is a feature of the course. The attendance limit is 18 and the fee \$150.

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Michigan Progress Reports Available

Prof. P. A. Herbert of the division of extension forestry, Michigan State College of Agriculture, has within the past few months compiled progress reports on some of the uncompleted forest experiments being conducted by that college. He writes to the Forest Worker to say that research workers interested in any of these reports can obtain copies by writing to him. The subjects are as follows:

Poisoning of Living Trees
Chemical Weed Eradication in Forest Nurseries
Use of Fertilizers in Forest Nurseries
Forest Tree Breeding
Germination Records
Correlation of Maple Sap Flow with Climatic Conditions.

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Missouri Pacific Looking for Forester

President L. W. Baldwin of the Missouri Pacific Railroad writes that he wishes to employ a man to do the same work in forestry that the agricultural agents of the railroad do in their field; that is, "to educate the people and promote reforestation and production of the forests along the lines of the Missouri Pacific."

Anyone interested in this position should write direct to Mr. Baldwin at St. Louis.

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STATE FORESTRY DEPARTMENTS AND ORGANIZATIONS

Men and Money for Mississippi Forestry

The Mississippi forestry bill, provisions of which were outlined in the Forest Worker for March, has since been made a law, and an appropriation of \$20,000 has been made for carrying on the work during the current biennium. Governor Whitfield has appointed the following State forestry commission: J. B. Bishop, Pinola; Mrs. F. H. Reeves, Jackson; Paul D. P. Spearman, Fulton; Posey Howell, Howison; J. M. Aldridge, Michigan City; and D. H. Foreman, Electric Mills.

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Clarke-McNary Act Amended

Congress has amended Sections 3, 4, and 5 of the Clarke-McNary Act so that their provisions are now extended to Territories and other possessions of the United States under the same conditions enjoyed by the States.

Section 2 has also been amended, so as to provide for a simpler method of certifying the expenditures made by States and private agencies in protecting forest-producing lands from fire. The law originally required that in all cases the State render "a satisfactory accounting," and the Comptroller General ruled that this wording made necessary (1) a full audit of each claim by the State auditing officer in advance of submission to the Department of Agriculture for settlement or (2) the submission by the State of a complete schedule of expenditures both by the State and by private agencies for the periods covered by each individual claim. Compliance with either of these requirements was troublesome and expensive. Under the amended law "the Secretary of Agriculture is authorized to make expenditures on the certificate of the State forester, the State director of extension, or similar State official having charge of the cooperative work for the State that State and private expenditures as provided for in this Act have been made."

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New Clarke-McNary Cooperators

Thirty-two States have now qualified for cooperation with the Federal Government in forest fire control under the Clarke-McNary Act. The most recent additions to the list are Oklahoma and Missouri. Oklahoma will cooperate also in the distribution of forest planting stock, and Missouri in farm forestry extension.

Two other middle-western States, Kansas and Nebraska, have just completed arrangements to cooperate in the distribution of forest trees under Section 4 of the act. The Kansas agreement was signed by State Forester Albert Dickens, who is also head of the horticultural department of the Kansas State Agricultural College. In Nebraska, where there is no State forest service, the work will be handled by the State extension service.

With these additions the States cooperating with the Federal Government in the distribution of forest planting stock now number 27. Agreements covering this activity are being completed also with New Jersey and Delaware.

Forestry in Los Angeles County

Spence D. Turner, head of the Los Angeles County forestry department, reports that in 1925 the department had the most successful year of its existence. It carried out reforestation work on burned-over areas of the county's watersheds more extensively than ever before. A new system for fire prevention and suppression was adopted by which the county is divided into six fire districts, each with its district office staffed by an assistant county fire warden and a trained personnel of dispatchers, patrolmen, and lookouts. This system proved itself effective and economical, and brought about a reduction in acreage of fires and in fire damage.

The county forester of Los Angeles County has a great variety of duties, since he is also the county's fire, fish, and game warden and chief of the Los Angeles County fire department, as well as district ranger for the California State Board of Forestry. The forestry department itself has one division handling reforestation work and another in charge of "esthetic forestry"--the protection and improvement of shade and ornamental trees along highways and roads.

During the most hazardous period of the fire season Los Angeles County keeps a force of experienced fire-fighters continuously employed. When these men are not busy with fires they collect seeds. In 1925 they collected 880 pounds of clean tree seed, chiefly of Coulter and Sugar pine, and 12,023 pounds of seed of several brush species including greasewood, sumac, and wild cherry.

Fifty forest planting demonstrations are being carried out in Ohio this spring by the State forestry department in cooperation with the county agricultural agents. Tuscarawas County, for which the first demonstration of the season was scheduled, ordered 200,000 trees.

Forestry Legislation in New York State

The New York Legislature has appropriated \$15,000,000 for the purchase of additional lands for forest and park purposes, as authorized by the bill voted upon by the people of the State in 1924. Of this amount \$5,000,000 becomes available to the conservation commission for the purchase of land in the Adirondack and Catskill regions and the remainder is to be used for purchases elsewhere in the State.

A forest taxation bill indorsed by the New York State Forestry Association has been introduced in the legislature by Hon. Clarence L. Fisher. Under the provisions of this bill the owner of a tract of forest land of five acres or more planted with an average of not less than 500 trees per acre or underplanted with an average of not less than 200 trees per acre would be entitled to assessment at the same rate as if his land were not forested, until the year when his timber was to be cut. At that time he would be taxed 5 per cent of the stumpage value of the timber.

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Cape Cod Fire Prevention Experiment

An unusual experiment in forest fire prevention is being made on Cape Cod, Mass. This picturesque cape, which has only about 13,000 year-round residents but attracts a summer population of several times that number, long ago lost its original forests and now bears little forest growth. Harris A. Reynolds, secretary of the Massachusetts Forestry Association, says of the present forestry conditions on the cape, "This particular area has probably a higher fire hazard than any area of equal size east of the Rocky Mountains, for the following reasons: The soil is very dry and sandy, so that it is possible to have a down-pour one morning and by the afternoon of the next day a conflagration; the forest growth is predominantly scrub oak and pitch pine, both very inflammable; the area is subject to exceptionally strong winds; the forest growth at present is of little value and consequently the public attitude toward forest fires is bad, the feeling being that they do no special harm."

Fires cannot spread to the cape from outside, for since the completion of the Cape Cod Canal it is entirely surrounded by water. This fact, together with the conditions listed by Mr. Reynolds, suggested the cape as the field of a three-year experiment in educating the public to prevent forest fires.

The educational campaign is being directed and financed by the Massachusetts Forestry Association. The association's forester, Arthur M. Cook, has been touring the district with 5,000 feet of motion picture

film which he has shown in schools and clubs until he believes every man, woman, and child on the cape must have heard of the experiment. Also H. N. Wheeler, of the U. S. Forest Service, this spring gave popular lectures on forestry before 17 schools and clubs on the cape. A committee of three leading citizens has been organized in each of the cape villages, of which there are about forty. Officers of the railroads have met with representatives of the forestry association and have agreed to pay for having their rights of way burned over by the local forest wardens, to try in every way to prevent passengers from throwing smoking materials from trains, and to put on trailers after each train when requested by the State fire warden to do so. The electric power company which covers the cape district has agreed to clear its rights of way under the direction of the local wardens, and will instruct its men to assist in preventing and suppressing fires.

Many old roads on the cape have been allowed to close up, until there are districts of from 2,000 to 4,000 acres without a passable road. These old roads are being brushed out to a width of about ten feet so as to be passable to fire trucks. This work costs about \$25 a mile. To pay for it six towns of the cape have appropriated a total of \$2,200 and the forestry association has contributed an equal amount.

A condition that was not foreseen when the fire prevention campaign was planned is the Cape Cod real estate boom. By causing much clearing of land and brush burning, and by bringing in a large number of laborers, this has increased the difficulty of the work for fire prevention.

The Massachusetts Department of Conservation and the Federal Forest Service are cooperating in financing a patrol of the cape during the fire season. Rangers will inform tourists and others of the experiment, determine the causes of fires, patrol the forest area, and prevent the starting of fires in the open without permits from the local fire wardens.

Discussing the purposes of the experiment, Mr. Reynolds says "We have statistics to show the cost of suppression and the acreage burned over for many years past. We shall take those data for the three years previous to the experiment and compare them with the costs of education, patrol, and suppression and the acreage burned over during the three years over which the experiment will extend....We believe that if we can show that education and patrol will reduce the acreage burned over and that the costs are not any greater, it will revolutionize our system of forest fire control in this State. Instead of spending money on suppressing fires after they are started we shall spend it in advance in preventing fires."

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Fire lookout stations erected by the Fish and Game Commission of West Virginia during a period of about four years number 28. The plans of the commission call for the erection of 75.

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Municipal Forests in Connecticut

Twenty cities and towns in Connecticut own forests that protect their water supplies, according to a booklet on "Town Forests and Parks for Connecticut" issued by the State's forestry association. The total area of these forests is 13,000 acres. Hartford's 4,000 acres is the largest, and New Britain's 2,700 acres is second. Thirteen of these cities and towns have developed their forests partly by planting.

An additional 3,000 acres in other forests and forest parks and 4,000 acres in nonforested land that should be forested brings the total forest land owned by the municipalities of the State to 20,000 acres. This almost equals the forest land holdings of the State itself, for the total area of Connecticut's 11 State forests is 23,495 acres.

The Connecticut Forestry Association states that at least 1,000,000 acres of land in the State is better suited for permanent forests than for any other purpose. It estimates that in 25 or 30 years this land could be put in condition to produce, under the simplest form of forestry management, 300 board feet of lumber per acre per year. On the principle that in partly open and partly forested country, under average conditions, not less than 25 per cent of the forest area should be publicly owned, Connecticut should have 250,000 acres of public forests. The State more or less definitely aims to increase its forest property to 200,000 acres. This leaves 30,000 acres still to be acquired by the cities and towns.

In urging that the towns amplify their forest holdings the association points out that "a New England, especially a Connecticut town, is eminently suited to engage in this sort of enterprise. Some one has said that Connecticut is a federation of self-governing towns. The town is a real unit of government, not as in most parts of the United States a mere tax district. It is accustomed to owning and managing property and to doing things in a cooperative way. Its citizens are proud of it and take an active interest in its affairs. It is, therefore, reasonable and proper for it to assist the State on the one hand and the private citizen on the other to help solve our forest problem and particularly, as every true Yankee will agree, when it can do so to considerable advantage to itself."

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The State forest nurseries of Vermont report that this year's demand for forest planting stock is the greatest in their history. The orders they have received for spring shipment cover approximately 1,500,000 trees. These will reforest about 1,250 acres of abandoned farm land. In response to the growing interest of the people of Vermont in reforestation the State's forest service is planting this spring sufficient seed to make 5,000,000 transplants available three years hence.

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Nine States Cooperate in Forestry Survey

Nine States of the South and Middle West are to cooperate with the public relations office of Forest Service District 7 in a survey of regional and State forestry conditions. The survey will be made under the provisions of Section 1 of the Clarke-McNary Act and with the object of working out suitable systems of forest-fire prevention and suppression in these States. Plans for the work were formulated in March, when District Forester Kelley, Assistant District Forester Scott, and District Forest Inspector Bruner met with the State foresters. A meeting at Louisville on March 9 and 10 was attended by the State foresters of Kentucky, Tennessee, West Virginia, Ohio, Indiana, and Illinois, and one at Raleigh, N. C., on March 11 and 12 brought together the State foresters of Virginia, North Carolina, and Georgia and Director Frothingham of the Southern Appalachian Forest Experiment Station.

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County Forestry Associations in Tennessee

Farmers and other forest land owners of Tennessee are banding together in county groups to protect and improve their forests. Six county forestry associations have been formed. In each civil district of the counties where these associations are fully organized a citizen elected by the association acts as forestry leader. He takes the lead in spreading forestry information and directs volunteer work for the prevention and suppression of forest fires. In Dickson County, where the latest of the six associations has just been formed, a committee of the county chamber of commerce is studying local conditions in preparation for a fire-prevention campaign. Later this association will study cutting methods.

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The California Legislature has approved a proposal to amend the State constitution so that growing timber may be taxed on the same basis as other growing crops. The proposed amendment will be submitted to the voters at the general elections in November.

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The American Forest Week proclamation of Governor McLean of North Carolina included the statement, "Properly managed the timber lands [of North Carolina] can in 25 years be returning as much in money annually as the cotton crop and at infinitely less expense for maintenance. Mismanaged and neglected, these same lands can in the same time become practically barren wastes, of little or no value and a drag on other lands."

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Legislation and Tree Distribution in New Jersey

The sum of \$30,000 has been appropriated by the 1926 Legislature of New Jersey for the acquisition of State forests. Other appropriations provide for the enlargement of the State's forest nursery and for continued cooperation in maintaining an extension forester. By a joint resolution the legislature indorsed the program of the conservation and development department for the acquisition of at least 200,000 acres of State forests.

Distribution of forest planting stock by the New Jersey Department of Conservation and Development began in 1923, when orders were filled for 200,000 seedlings. The number has rapidly increased year by year until this spring the department is filling orders for 1,100,000 seedlings. Most of these trees are going to small land owners and to farmers, the orders averaging 6,000.

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A new Louisiana reforestation contract covering 48,089 acres in Livingstone Parish was signed in March by the Great Southern Lumber Co. Under the provisions of a State law the timber growing on this land will not be taxed for a period of 25 years. This brings the timberlands in the State covered by such contracts to a total of 250,000 acres.

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An effort to find out just what progress has been made in reforesting the cut-over lands of New York State will be made by State and county officials in June. The survey will be conducted with the cooperation of the State College of Forestry, the forestry department of the State College of Agriculture, and the industrial agents of several railroads.

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The Florida Beautification and Forestry Society has announced that owing to lack of funds it is unable to continue its activities.

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Santa Barbara County, Calif., now has a board of forestry, created by the board of supervisors to look after forest and watershed protection, game conservation, and park development in the county. Meeting for the first time on April 10, the new board appointed as county forester F. E. Dunne, a ranger on the Santa Barbara National Forest.

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The Forestry Department of Virginia reports that 1925 was the most hazardous forest fire year since it began active operations in 1915. Although 67 per cent of the fires occurred during March and April, one or more fires were reported in every week of the year except two. Fires in the protected area numbered 804. Of this number 25 per cent burned over more than 100 acres and 3 per cent burned over more than 1,000 acres, the average acreage per fire being 159.5.

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Three forest fire protection associations have been organized in Virginia since July 1, 1925, when Federal funds for private cooperation became available under the Clarke-McNary Act. The Bath County Association has 124,000 acres listed for protection, the Alleghany Association approximately 100,000 acres, and the Bland-Smyth County Association 60,000 acres. Associations previously organized are the West Rockingham, the Tazewell-Buchanan, and the Spotsylvania, with a total protected area of 304,000. The assessment is 1¢ per acre per year. The associations have built 42 miles of telephone line and 8 lookout towers.

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The Minnesota Tree Society has been organized for the promotion of forestry within the State. Governor Christianson is the honorary president, and the dean of the department of agriculture of the State university is one of the vice presidents. The technical advisory board consists of the State forester, the head of the State forest school, and the director of the Lake States Forest Experiment Station.

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The Rothrock State Forest, Pennsylvania, with an area of 36,000 acres, has had no forest fires in the past two years. In the years 1921-1923 it had but eight fires, and these covered a total area of only 147.5 acres.

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EDUCATION AND EXTENSION

California Extension Forester's Program

Prof. Woodbridge Metcalf of the University of California, who has become extension forester of the State, has outlined his plans for his first year of extension work as follows:

"1. Development in several counties of a comprehensive county forestry program including a community demonstration forest, a county board of forestry, reforestation of burned-over areas in the county, and the giving of some forestry instruction in the schools.

"2. Preparation of the first of a series of manuals for the small timber owner in California. This will deal with important timber trees of the State and their identification.

"3. Assistance to owners of stands of second-growth yellow pine to the end that this source of future lumber supply may be better protected and managed.

"4. A survey of windbreak conditions in several sections of California in order to develop a satisfactory windbreak standard for each section."

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One thousand acres of forest land has been given by the Great Southern Lumber Co. to the Louisiana State University. The tract is located between Bogalusa and Franklinton, on one of the State's best highways. It offers an opportunity not only for experimental work but for the development within a few years of a valuable stand of timber. The students will begin work on the new school forest this spring.

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Los Angeles school children are to reforest 40 to 160 acres of burned-over land with trees of their own growing. Everett R. Stanford, assistant forester of Los Angeles County, originated the plan. The trees will be grown in the 160 or more garden plots and nurseries of the Los Angeles schools and will be planted, under the supervision of Federal and county foresters, on the Los Angeles National Forest.

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Big Increase in Value of School Forest

The Cloquet Forest, acquired by the University of Minnesota in 1909, not only has served the university well for the past 14 years as an experimental tract but has developed a value four times the amount paid for its land, timber, and buildings. The total outlay was \$27,596. The annual income of \$793 from the timber cut has paid 7 per cent on the investment in land and timber, and the present value of land, timber, and buildings is conservatively estimated at \$121,396.

In the past this forest has been treated simply as an experimental tract. Whatever increase has occurred in its growth is due simply to protection from fire. The university is now considering plans for developing it to its fullest growing capacity. Within 25 years, the staff estimates, its 2,500 acres of forest-bearing land should be put in condition to produce 500 board feet per acre per year.

This forest contains the only virgin timber within a radius of 50 miles. Situated on a trunk highway, it attracts many visitors, and forms a valuable demonstration of forestry practices not only for the locality but for the whole of Minnesota.

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Illick Leads a Party Through Europe

Prof. Joseph S. Illick of the Pennsylvania State Forest School is for the third season conducting a group of students through the forests of Europe. Professional foresters who arranged to accompany the party include Chief Forester Caverhill of British Columbia and Edgar C. Hirst, formerly State forester of New Hampshire. Dr. C. A. Schenck of Darmstadt, Germany, is the party's official guide in Europe. After inspecting the work of the Netherlands Forestry Association at the Hague the party is to study the pine forests about Bordeaux. Its schedule includes attendance at the World Forestry Congress at Rome during the week of April 29-May 5. This is to be followed by several days in the forest of Sihlwald, in Switzerland, owned by the city of Zurich, and by visits to the Black Forest, the pine forests of Prussia, and the spruce forests of Saxony. Four of the foremost European forest schools will also be visited. The final visit will be to English forests and the Imperial Forestry Institute at Oxford.

Professor Illick will remain in Europe after his party sails for home the last week of May. One of the subjects which he will study is the behavior abroad of certain American forest species that have been planted extensively in European forests.

Mexican Foresters Study Forest Service Methods

Four graduates of the forest school of Mexico have been sent by their Government to study forestry in this country under the supervision of the U. S. Forest Service. One is stationed at the Forest Products Laboratory as a student of the utilization of forest products and the others have been assigned to the Monument Nursery at Monument, Colo., the Southwestern Forest Experiment Station at Flagstaff, Ariz., and the Sierra National Forest, Northfork, Calif., for the study of reforestation, silviculture, and forest administration.

Japanese Forest Tree Seed Received

A shipment of seed of Japanese forest trees has just been received by Prof. Woodbridge Metcalf, extension forester of the University of California, from Prof. M. Fujioka of Kyushu Imperial University, Japan. This gift is a return for a shipment of California forest tree seeds sent by the California university to the Japanese Forestry School in December. It contains about forty different kinds of seed. California conditions are known to permit satisfactory growth of Japanese trees, for several Japanese varieties are already growing well in the nursery on the campus of the University of California. These include the Sugi or Cryptomeria (a tree closely related to the California redwoods), Japanese red and black pines, Hinoki cypress, camphor tree, and two varieties of Japanese oaks. Ten-year-old trees of the red and black pines are growing in height at a rate of more than $1\frac{1}{2}$ feet a year and are already bearing fully developed cones - a fact of great interest to foresters experimenting in the cross-breeding of timber tree species.

Some of the seeds will be sent to State Forester M. B. Pratt for sowing at the State forest nursery near Davis, Calif. The remainder will be planted in the forest nursery on the Berkeley campus.

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Boy Scouts Enlist as Connecticut Forest Guides

Boy Scouts of Connecticut are practicing forest protection under the guidance of the State forestry department. During the past three years State Forester Austin F. Hawes, acting on recommendations by local scout executives, has appointed 249 of them as Connecticut forest guides. Each guide pledges himself to protect and conserve forest trees, wild plants, birds, and harmless animals; to urge others to do likewise; to be careful with fires at all times and in all places; and, when called upon, to help fight forest fires. He receives a badge, and a certificate

signed by the State forester. The duties of the guides include patrolling fire hazards during the picnic, camping, and hunting seasons; tagging autos parked in the woods by hunters and campers and warning them about leaving camp fires burning; posting fire warnings; distributing forestry information; and assisting to prevent and suppress forest fires.

In the spring of 1925 Boy Scouts of Norwich, Conn., aided in extinguishing eight fires, and one troop constructed a lookout tower in the top of a large hickory tree in Norwichtown from which scouts scanned the country for miles around during the fire season.

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Maryland Townspeople Sign a Pledge

School children of Frederick, Md., during American Forest Week pledged thousands of their townspeople to be careful with fire in the woods and otherwise to "foster and protect" the woodlands of Maryland. The local Lions' Club had offered prizes of school equipment worth \$25 and \$15 respectively to the two white schools turning in the largest number of signed pledges in proportion to their enrollment, and a corresponding prize worth \$20 to the winning negro school. Before the end of the week the pledge had been signed by 40,000 of the town's 60,000 population.

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More than 200,000 trees were ordered for planting by public school children of Pennsylvania on the State's two Arbor Days of 1926. This school planting, the largest of the State's history, included many forest trees.

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Sesquicentennial Memorial Trees

George E. Nitzsche, recorder of the University of Pennsylvania, has suggested that every class of every department in the university commemorate the 150th anniversary of our nation's independence by planting a sesquicentennial tree somewhere on the campus, on the exposition grounds, or in one of the Philadelphia parks. The grounds of the University of Pennsylvania are already marked with a number of memorial trees including scions of the Charter Oak and the Penn Treaty Elm, planted in 1366 and 1896 respectively. Mr. Nitzsche passes on to other colleges and universities, and to public and private schools, the suggestion that they celebrate this anniversary of our nation's birth by planting memorial trees.

FOREST SERVICE NOTES

On the Reputations of Forests

By Aldo Leopold, U. S. Forest Products Laboratory

Every forester has encountered the fact that the public's idea of forestry is often built up on incidental or even extraneous details. There are people, for instance, who picture forestry as planting, and others who think of it as a possible solution for the Christmas-tree problem.

But do we realize the fact that our own ideas about certain forests are often likewise founded upon unimportant or irrelevant characteristics? To those foresters who have not visited them, or to those whose professional eyesight is defective, I suppose the Tonto will long continue to be a forest full of watersheds but empty of trees; the Apache, a place where they throw a wide loop from narrow ponies; the Angeles, a place encrusted with two layers of summer homes; and the Sierra, a place where they read Chaucer round the camp fire and argue light-burning with Stewart Edward White.

Just so, before I saw it, the Arkansas was a place where poorly mounted rangers engaged in a pitched battle with an army of chiggers and June 11 claims.

This is the story of my conversion to a different way of thinking.

The trouble is that the reputations of forests were founded in the days when everybody had to be so interested in the whereabouts of boundary lines, in the lack of barns, and in the profusion of hostile editors that he had little time left to be interested in the possibilities of forestry.

Rate the Arkansas on its possibilities for the practice of forestry and I doubt if there is a national forest in the country that can make a more impressive showing. Consider, for instance, the virtues of its predominant species, shortleaf pine.

The shortleaf of the Arkansas is first of all a quality product. The virgin stuff has 10 per cent more uppers than similar stands of western yellow. Even rapid-growth stuff of moderate age seems to hold a high proportion of good lumber. Some day, of course, our efforts to meet a primarily qualitative timber shortage by primarily quantitative forestry are going to come down with a bump, but it looks as if our good friend the shortleaf would cushion the bump on the Arkansas.

Secondly, consider promptness of reproduction. Shortleaf seeds nearly every year; western yellow, every 3-7 years. Shortleaf cutting areas reproduce almost instantaneously, while in western yellow the reproduction period runs up to 20 years.

Thirdly, consider safety of reproduction. Burn a patch of young shortleaf and it promptly sprouts. It is the only national forest conifer that coppices. Burn a patch of any other pine, and you either plant expensively or wait expensively. This one fact of shortleaf coppice seems to me of enormous significance in lowering the risk of forestry.

Fourthly, consider defects. The cull on sales is several per cent less than in similar western yellow. Shortleaf has no spike tops, and a fungus or fire scar deteriorates a few feet instead of a few yards of bole. Shortleaf prunes quickly, and is smooth and straight as the mast of a Salem clipper -- a pleasure to the eye and to the saw.

Fifthly, consider that incubus of national forest silviculture, the "little-used species." Shortleaf on the Arkansas is not encumbered with a single poor relation. Many of our other good forests, if not handled with utmost circumspection, are liable to end up with "nothing else but." To those quantitative foresters who foresee a future consisting wholly of pulpwood this may not seem much of a point, but to those conservatives who think people will continue to like the feel of a real board, and that national forests are one place where such boards should grow, it is a point of no small consequence.

Lastly, consider the precautions which the forester must take in such matters as erosion. Scar up a cutting area in western yellow pine and your site may end up in the Gulf of California; scar up a shortleaf cutting and your reproduction is just a bit better than ever. Moreover, there is little danger of it being too good, for shortleaf doesn't stagnate like lodgepole.

Of course, forestry isn't all roses, even on the Arkansas. There is the fire problem. The Arkansas burns over every 14 years, the yellow pine of D-3 every 300. But the Arkansas fires are man-caused fires, and hence "actionable." If there is a forestry question anywhere that offers a more interesting challenge to the brains of foresters than the problem of fire prevention on the Arkansas, I should like to know its whereabouts.

In short, to a young forester looking for a place where he can actually practice his profession, I would say "Young man -- go to the Arkansas."

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Federal Forestry Legislation

A law recently enacted by Congress authorizes the exportation of timber lawfully cut from the national forests, or from public lands in Alaska, whenever in the judgment of the secretary of the department having jurisdiction over the land the supply of timber for local use will not be endangered by such export.

The House of Representatives has passed the Woodruff bill, which would authorize expenditures of \$2,000,000 a year for the fiscal years beginning July 1, 1927, and July 1, 1928, for the acquisition of lands under the Weeks Law. As originally proposed in the House, this bill covered 10 years instead of 2 and an appropriation of \$40,000,000. The bill has not been finally acted on by the Senate. Should it become a law, the appropriations authorized would not be made at the present session of Congress.

The Agricultural Supply Bill as amended by the House and Senate Conference Committee carries an increase of \$18,000 in the appropriation for the Southern Appalachian Forest Experiment Station.

Senate Bill 2516, for a Pennsylvania forest experiment station, has been favorably reported by the Senate Committee on Agriculture for \$30,000 and is now awaiting action by the Senate. At the hearings Senator Reed of Pennsylvania, who introduced the bill, expressed himself as particularly anxious to have it passed this year.

Senator McKinley of Illinois has introduced a bill which would provide for a central States forest experiment station, to be located in the State of Illinois; and for an appropriation of \$80,000 for its maintenance. This is the largest appropriation proposed for any forest experiment station up to the present time.

Representative Aswell of Louisiana has introduced a bill (H.R. 11605) which would provide \$85,000 for establishing a hardwood forest experiment station and national park near Colfax, La. The area of about 375 acres designated by the bill, known locally as Bynam Woods, contains a rare hardwood forest.

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Administration of the Savanna National Forest, in northwestern Illinois, is to be assumed by the Bureau of the Biological Survey. While retaining its status as a national forest, the tract will be administered as a part of the Upper Mississippi Wild Life Refuge. This refuge is under the charge of W. T. Cox, who was formerly chief of the forest management branch of the Forest Service and later forester for the State of Minnesota.

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Game, A Forest Asset--and Sometimes a Liability
By Will C. Barnes, U. S. Forest Service

A forest without game and birds is no forest at all. Nothing could be more lonesome, dreary, and inhospitable than those dense forests on our northwestern coast where because of the tremendous height and number of the trees and the lack of underbrush there are few birds and almost no game animals. The birds and animals are entitled to a home in the forests, too, by right of prior occupation. But the American people have taken quite as little thought for their preservation as for that of the trees themselves.

Fortunately for all concerned, there came with the idea of forest preservation an almost equally insistent demand for game preservation. In fact the two have gone so closely hand in hand that there was no separating them. With our national forest officers game preservation stands almost second to forest preservation. It has an appeal to them as lovers of outdoor life that makes it a pleasure and not merely an official duty.

The result of this work, the rapidity with which almost gameless areas have been restocked--not by artificial means but merely through taking care of what we already had and "letting nature take its course"--has been a tremendous surprise to every man in the Forest Service. To a large extent the general public has not as yet fully sensed this situation. Citizens who are otherwise well posted believe that the "big game animals"--deer, elk, moose, antelope, and bear--are growing extremely scarce and are likely to become as extinct as the dodo, or, to take an example from our own country, the carrier pigeon.

In particular, the buffalo, like the Indian, is thought of as nearing extinction. As a matter of fact the Indian population undoubtedly numbers many more individuals at the present time than it did the day the Pilgrims landed on this continent. While the same is not true of the buffalo, that animal is neither extinct nor liable to become so. We have more buffalo today than we know what to do with, considering their comparatively small economic value. They should, of course, be preserved for posterity, just as any other of our native game animals should be.

An interesting example of the general lack of information about the present status of the buffalo was shown three or four years ago when the owners of the herd on Antelope Island in the Great Salt Lake, Utah, found the buffalo had increased far beyond the safe grazing capacity of the island, which is privately owned. To reduce the herd and in a way get a return on their investment, they offered for a certain fee to permit anyone to go to the island and kill one buffalo. The papers took it up, and at once the departments at Washington were bombarded with letters and wires demanding that the Government put a stop to the "slaughter" of

this "practically extinct" animal and take the herd over and preserve it. Every western member of Congress received like appeals. And yet at that very time certain Government officials were scratching their puzzled heads and trying to find some way other than slaughter to dispose of the surplus in the several big buffalo herds under Federal control. They haven't found it yet and would thank anyone for a plan that will solve the problem for them.

As for elk and deer, and game birds such as the wild turkey, they have shown large increases in every national forest located in a region where such game originally was found. In the early eighties the mountains of Arizona and New Mexico and southern Colorado were fairly alive with almost unbelievable numbers of wild turkeys. At the time when national forests were established in those States, it is safe to say, the turkey was far more nearly exterminated than the buffalo ever has been; and yet today, with only partial protection, wild turkeys are rapidly increasing in these forests.

Deer, of course, are found everywhere. The Kaibab deer herd of 40,000 which, hemmed in by the Grand Canyon of the Colorado and by desert, has "eaten itself out of house and home," is an outstanding example of what may be called altogether too strict protection. It reminds one of the fable of the man who trained a bear to sit beside him and watch over him while he slept. One day the flies were unusually troublesome to the sleeper. One huge bluebottle insisted on perching on the man's nose. In vain did the bear "shoo" it away. Finally the precocious animal ambled off and found a huge flat rock, with which he "swatted" the fly. The results were satisfactory along but one line. There was too much protection. Fly and man were both exterminated.

A shining example of what has been accomplished through protecting the game on the national forests and giving them a fair chance is found in a recent report by the supervisor of the Manti National Forest in Utah, a comparatively small forest established in 1903. Supervisor Humphrey of the Manti served there for five years as a ranger, beginning in 1906. "During the five years I was ranger," he says, "I do not think I saw more than 30 deer altogether on the Manti Forest." He left the Manti in 1912, returning in 1919 as supervisor. "I noticed quite an increase in the number of deer on my return," he writes in 1926. "One of the rangers in 1919 counted something like 50 head at different times during the season. The next year he counted 67 head, and the following year 100. Last spring, 1925, on the same district the ranger and I counted 58 deer in less than half a day's ride, counting 23 in one bunch. In 1924, during the open season, 100 bucks were killed by hunters on the same district." An official estimate of the number of large game animals on the Manti in 1925 shows 2,500 deer and 445 elk. The elk were the result of a "plant"

of some forty head shipped in from the Yellowstone country in 1917. The increase in the deer is particularly remarkable because deer hunting has been allowed regularly and also because the Manti is one of the most closely stocked of all our national forests. Practically every acre of it is grazed by sheep and cattle. Further, it is in the midst of a closely settled farming community, so that the deer have none of the advantages of what may be called wilderness seclusion.

The same situation exists on every national forest in Utah, though stock grazing conditions are very much congested. In 1915 there were in Utah 8,470 deer, 181 elk, and 35 mountain sheep. In 1924 the State's total was 18,161 deer, 1,808 elk, and 22 mountain sheep. Elk have increased to such an extent that in 1925 the State game warden authorized the killing by hunters of a limited number. In each of the plants in the State the elk had outgrown the ranges and in looking for food were damaging farms in the vicinity of their forest range.

Not long ago a member of a California conservation association took the Forester to task for allowing live stock to graze in the national forests of that State. "Our deer are practically extinct," was his plea, "simply because the cattle and sheep have driven them out." When it was pointed out to him that the game census which the forest officers take every year showed a total of more than 180,000 deer on the seventeen national forests in California, seven of the forests having more than 10,000 deer each and one in the Sacramento Valley being credited with 46,000, he expressed great surprise--and also some doubts as to the accuracy of the count. Soon after that we had a fine opportunity to verify our figures, by an actual honest-to-goodness count. An outbreak of foot-and-mouth disease on the Stanislaus Forest, in central California, made it necessary to order all live stock removed from the ranges of that forest. As deer and all four-footed animals carry the disease, it became equally necessary to rid the forest of game animals. This was done by Government hunters, who shot down every deer they could find. The campaign lasted a year. The number of deer on the Stanislaus Forest had been estimated at 10,000; but the Government hunters killed, by actual count, more than 22,070. The census as of January, 1926, shows 10,000 deer still on that forest. Evidently if any errors have crept into our game estimates it is because our men have been under- instead of overestimating numbers.

Our figures do show, however, that while most game animals are increasing in California the one distinctive, outstanding big game animal of the Golden State, the grizzly bear, is almost at the point of extermination. Our reports for 1924 showed only about 800 of these gigantic animals now alive on the national forests, of which not a single one was observed on any forest in the State that carries the grizzly as its State emblem. As far as California goes, the grizzly seems to be an extinct species. And by that same token you can't charge this disaster--for such it is--to grazing cattle and sheep on forest ranges.

Then there's the busy beaver. Not more than 10 years ago a well-known writer on game animals in an article on this animal stated emphatically "The beaver is practically extinct in the West, excepting a few colonies in the Yellowstone National Park." Our forest officers in Colorado could have told him a different story, for at that time our figures showed something like 20,000 beaver on the various national forests in that State, where they were protected against trapping. As of January, 1926, these animals were estimated at more than 47,000 on the streams within the national forests in Colorado alone. And this in spite of the fact that during the past two or three years the trapping of beaver has been permitted by State law, under certain restrictions, where they are doing damage to farms, roads, and other property. From the present number of beaver the State can sell each year beaver pelts, taken by licensed State hunters, which at present fur values will bring in a revenue of from \$100,000 to \$125,000. Year after year there have been reports charging the beaver with the blocking of irrigation ditches, overflowing of farm or timbered lands, and other damage of that kind. On the other hand these four-footed irrigation engineers, by storing up waters in their dams, add tremendously to the supply of irrigation water in times of drought and water shortage. Undoubtedly, the value of this work fully equals the fur values mentioned above.

The recreational, sporting, and actual meat-producing value of game animals in the national forests makes them a national asset of no mean proportions. Sometimes, as in the Kaibab case and again in several of the Elk "plants," they become a direct liability. In the final analysis, however, the balance is strongly in favor of the game.

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Four new national game refuges within the boundaries of the Ozark National Forest, Arkansas, were established by presidential proclamation on April 26. The names by which these refuges are locally known, with their locations and areas, are as follows: Livingston, Stone County, 8,420 acres; Barkshed, Stone and Baxter Counties, 5,300 acres; Moccasin, Pope County, 3,620 acres; and Haw Creek, Johnson County, 4,160 acres. The total acreage is 21,500. With absolute protection of game, these relatively small units are expected to serve as breeding places to stock the surrounding country.

The supervisor of the Ozark National Forest will administer the new game refuges, with the cooperation of the Arkansas Game Department and the local residents.

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Government Purchases Forest Land in Michigan

A 51,000-acre tract in Michigan just purchased by the National Forest Commission is the first piece of land ever bought by the United States primarily for the purpose of timber production. It is part of a purchase unit of 616,970 acres, recently established by the commission at the same time with one of 1,628,108 acres in Minnesota. These units are the first established since the Clarke-McNary Act authorized the commission to purchase forest land for the purpose of timber production as distinct from that of regulating stream flow. The one in Michigan was chosen partly because of its suitability for experimental and demonstration work. It embraces large areas which although once well timbered are now bare, sandy, and unproductive. The efforts of the Forest Service to restore it to productivity will be a demonstration of great value to the people of the State.

Other purchases just authorized by the commission include 83,000 acres in additions to the national forests of the eastern and southern States.

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Planting on the Pisgah

This year will see the most extensive planting ever done by the Pisgah National Forest staff on the cut and burned areas of Clingman's Peak, along the Mount Mitchell motor road. About 86,000 transplants, principally of Norway spruce, have been promised to Supervisor Mattoon and will be brought from Gladwin Nursery, in the Monongahela National Forest.

In connection with this planting the Appalachian Forest Experiment Station will put in a number of experimental plots to determine the suitability of certain western American, Japanese, and European species for planting in the Appalachians. F. W. Haasis of the station staff will be in charge of the work. At present about 34 square chain sample plots, each containing 100 transplants, have been established. These are already giving results for a dozen or more coniferous species. Among the species that will be planted this year are Japanese larch, Engelmann spruce, lodgepole pine, and white fir. The station expects to test every species that has any promise at all for that locality.

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The boundary between Forest Service Districts 2 and 7 has been revised so that in traversing Oklahoma it follows the Indian Meridian, 12 miles east of Oklahoma City. Administration of the Wichita National Forest and Game Preserve, formerly in District 7, will be taken over by District 2 on July 1.

Forestry Films Make a Hit

Copies of the Forest Service films "Trees of Righteousness" and "What the Forests Mean to You" have been added to the equipment of "the Arkansas fire-prevention truck," the travelling exhibit with which Ranger James M. Wait constantly tours the towns and rural communities within and near the Ozark and Arkansas National Forests. T. T. Hall of the Ozark staff describes as follows the reception given the films in Russellville, Ark., the town of 4,500 in which are located the headquarters of the Ozark National Forest:

"The films 'Trees of Righteousness' and 'What the Forests Mean to You' were received recently. We went to the Rotary Club of Russellville and told the members about them, and the pictures were given a private 'run' before the executive committee of the rotary and a few business men. The rotary promised to do everything they could to assist us in getting out the crowds. They paid for the printing of free tickets for the show. The manager of the Community Theatre promised the free use of his theatre for showing the films and placed his entire personnel at our command from 9.00 a. m. to 5.30 p. m., Friday, April 2, and from 9.00 a. m. to 12 m., Saturday, April 3. A very attractive lobby was arranged at the entrance of the theatre. It was made up of fire-prevention posters, colored transparencies effectively lighted, a large collection of photographs of the Ozark National Forest each properly described with label, a large shield of the Forest Service painted green on beaver board, and other appropriate signs. Free tickets were distributed to all the school children in the three schools of the town and the students at Polytechnic College. The town schools were dismissed Friday morning and the children came in a body to see the pictures from 9.00 a. m. to 12 m. The students from Polytechnic College saw them on Friday afternoon.

"After the children had told their parents at the lunch hour Friday that we had some wonderful pictures the rush was on. They came to the theatre and looked the lobby display over. Many were amazed at the pictures of wonderful scenery, good roads, etc., within twenty to fifty miles of Russellville. We answered their many questions freely, gave them printed matter, and sent them into the theatre. The films were shown to 1,900 people on Friday, and to 1,100 people on Saturday morning. Many adults saw them through twice and a large number of children saw them through no less than four times. Many business men after seeing the pictures got in their cars, went home, and brought their wives and 'kiddies' to the theatre. Forestry and fire prevention were the topics of the day. Many who did not get to see the pictures are inquiring when they will again be shown here. The films were run seven times Friday and Saturday morning. We closed the show promptly at noon Saturday with a large number of people wanting to be admitted to the theatre, and there were many requests from the patrons of the regular Saturday afternoon show that the Forest Service pictures be shown in connection with the other pictures."

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A new committee on sample plots has been appointed. Members of the Association of State Foresters appointed to it by President Besley include W. R. Hine of Louisiana, Edmund Secrest of Ohio, and W. M. Baker of New Jersey. Those appointed by President Dana to represent the Society of American Foresters are A. C. Cline of Harvard, J. A. Ferguson of Pennsylvania, J. N. Spaeth of Cornell, and F. S. Baker of the University of California. The Forest Service has asked Doctor F. C. Craighead and Doctor Carl Hartley of the Office of Forest Pathology and the Division of Forest Insect Investigations to represent their respective offices and has designated Duncan Dunning, G. A. Pearson, and E. N. Munns as members from the forest experiment stations.

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The Advisory Committee of the Pulp and Paper Industry to the Department of Agriculture met for the second time on April 27. The committee suggested that the Forest Products Laboratory continue its investigations of pulp and paper work, particularly with reference to pulping processes for new woods, the recovery of valuable products from the waste, and methods of purifying streams. It indorsed the extension of the regional forest experiment station plan by the establishment of the Pennsylvania, Ohio Valley, and tropical stations, and pointed out that the need of the pulp industry was for additional information on growth. The committee is much interested in the economic studies of the Forest Service and is anxious to have the log and stump-price studies completed soon.

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The \$15,000 fund made available under the Agricultural Bill for predicting forest-fire weather will be divided into shares of approximately \$10,000 for the West and \$5,000 for the East. The Weather Bureau plans to establish in each of the major forest regions a junior meteorologist who will work chiefly on the prediction of conditions favorable for the spread of fires. Under the proposed plan one man each will be stationed in California, the Northwest, the Northern Rocky Mountains, the Lake Region, and the Northeast.

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Printed matter sent out from Washington by the Forest Service for use in American Forest Week observance amounted to 1,290,000 pieces. This number included 740,000 copies of publications and 550,000 envelope stuffers, bookmarks, and posters.

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GENERAL FOREST NEWS

Farm Woodlands Facilitate Farm Loans

The Federal Land Bank of Springfield, Mass., in its business of making loans secured by first mortgages on farm real estate, gives special consideration to the timber on the farm woodland. In some areas of its district, which comprises the New England States, New York, and New Jersey, the presence and condition of timber on the farm is the deciding point in making or refusing a loan. E. H. Thomson, president of the bank, says, "A stand of merchantable timber is a liquid asset, and a stand of young timber increases in value each year. These two facts make for safety in granting a long-time, noncallable loan. It is the bank's experience that farms with good woodlots sell readily, but that after the merchantable growth is completely removed their value is apparently depreciated considerably more than the actual stumpage value of the growth removed. For example, a well-timbered farm which will sell for \$3,000 would not bring over \$1,000 if stripped of timber that has a present stumpage value of \$1,000."

In further explaining the bank's policy Mr. Thomson states:

"Timber permits the utilization of and furnishes an income from lands that would be a liability on many farms because of the soil, topography, and rugged conditions common to much of this area. It is a crop adapted to this type of country. It fills in the waste spaces and balances out the farm.

"It is a crop that has steadily increased in value, while other farm products have been subject to ruinous prices in some years. It also bids fair to continue to gain in value.

"A third feature, and one that is given altogether too little attention, is the fact that timber readily responds to care and improved methods of management. The farm woodlot even with little or no attention has assumed an important place on most farms; with increased attention its field of use and value is greatly enlarged.Improved methods of forest management...would be of little use to a farmer who has his mortgage to pay off in from three to five years, but they are of inestimable value to the man whose mortgage is paid over a 34-year period.

"Another factor from a credit standpoint is that timber is the only crop that is held by the first mortgage. In other words, the first mortgage amounts to a crop mortgage when dealing with timber.

"Still another feature is that the timber gains in volume even though a farm may be abandoned. While other income may fall very low or cease altogether, the timber crop continues to gain. This feature is especially important in maintaining the value of farms in the North-eastern States, where other industries tend to tempt the farmer away from agriculture and cause him to neglect the farm business.

"Timber on a farm is the one crop that furnishes winter work at a period when both men and teams are not otherwise employed. It thus permits a better balanced farm unit, lowering the cost of production of all the products of the farm."

The Federal Land Bank of Springfield requires that its borrowers obtain permits to cut or remove timber in all cases except for domestic use. More than 900 such permits have been granted, largely in the last two years.

In order to encourage better care and management of farm woodlands, the bank sends out with every loan, at time of closing, and whenever a timber permit is granted, a leaflet which briefly states a few reasons why forest products are likely to increase in value in the next decade or two, and which emphasizes the importance of using care in cutting fuelwood; the improvements that can be made in the young stands by weeding out inferior trees; the danger to white pine from blister rust; and the benefits of tree planting. The benefits and harm from pasturing are discussed, and fire protection is urged. For more detailed information on management, the farmer is advised to have the State forester or the extension forester look over his woodlot.

The bank has developed two cruising sticks, one for estimating the volume of standing trees and one for scaling logs. These sticks have proved very popular. The bank sells them at cost, and has sold more than 2,000 sets.

Standard Thicknesses for Inch Lumber

The Central Committee on Lumber Standards, meeting in Washington, D. C., on April 27, confirmed its former agreement as to the standard thickness of softwood lumber. The standard thickness for industrial lumber, dressed and seasoned, was established at 26/32 inch, and that of yard lumber, dressed and seasoned, at 25/32 inch. The engineers and architects on the committee, with the support of the Forest Products Laboratory, urged that the question of standardizing the moisture content of lumber be carried further. This would necessitate the development of a practicable method for determining whether the moisture content of a given piece of lumber or of a given shipment corresponds with the commercial standard.

Projects of National Committee on Wood Utilization

On April 28 the National Committee on Wood Utilization held a meeting in Washington, D. C. This committee, of which Axel H. Oxholm is director, was organized by the Department of Commerce as a result of the National Conference on the Utilization of Forest Products sponsored by the Department of Agriculture in 1924, and is made up of twenty-five or thirty representatives of lumber and paper manufacturers, lumber distributors, tie producers, and chemical industries. One of its main objects is to get into commercial use methods already worked out for the more efficient and less wasteful use of wood.

The lumber group adopted two projects which they regard as practicable and of direct importance. The first is the development of ways and means of marketing odd lengths of lumber. One of the southern pine men reported great progress in marketing end-matched lumber, which he has made a specialty. The second is the promotion of better seasoning practice so as to reduce seasoning losses throughout the entire trade, including manufacture, retail, and storage.

The committee adopted a suggestion that the Forest Service be asked to develop and offer the trade a universal log scale adapted to close measurement.

Project committees were created to take up the various projects and it was decided to continue the maintenance of a central office, with Mr. Oxholm in charge, for purposes of publicity and correlation.

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A census of private forestry in the United States is being made by the Society of American Foresters. Definite information about the practice of forestry by private interests in this country has never been brought together except in a very fragmentary way. In undertaking a fairly comprehensive survey in this field the society will have the assistance of State foresters, the American Forestry Association, the U. S. Forest Service, and other agencies.

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At least 85 lumber companies in the ten States of Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, and Texas are maintaining fire protection of their timberlands, according to a hasty survey by the Southern Pine Association. In these States selective cutting is being practiced by 58 companies and 39 are managing their timberlands with a view of permanent operation.

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More About Woods Humus as Fertilizer

The appearance in the March Forest Worker of W. R. Mattoon's article on the value of woods humus as fertilizer has brought to the editor's desk some additional observations on this subject. Mr. Howard Andrews, president of the Nashville Tie Co., Nashville, Tenn., has given out estimates of the fertilizer value of woods litter that greatly exceed those given by Mr. Mattoon. His figures for the amount of fertilizer materials per ton contained in maple leaves, longleaf pine needles, and shortleaf pine needles, and their commercial value, are as follows:

Oak Leaves

5.2 lbs. of phosphate @ 6¢ per lb.	\$.312
15.2 " " nitrogen " 24 ¹ / ₂ ¢ " "	3.724
6.4 " " potash " 5¢ " "420
	<u>\$4.456</u>

Longleaf Pine Needles

2.8 lbs. of phosphate @ 6¢ per lb.	\$0.168
18.8 " " nitrogen " 24 ¹ / ₂ ¢ " "	4.606
7.0 " " potash " 5¢ " "350
	<u>\$5.124</u>

Shortleaf Pine Needles

4.8 lbs. of phosphate @ 6¢ per lb.	\$0.288
24.6 " " nitrogen " 24 ¹ / ₂ ¢ " "	6.027
9.4 " " potash " 5¢ " "470
	<u>\$6.785</u>

In a bulletin on "Loblolly Pine in Maryland" Joshua A. Cope, formerly assistant State forester of Maryland and now extension forester of the New York State College of Agriculture, discussed the use of pine needles or "shats" for bedding strawberries and sweet potatoes. He described as follows an instance in which the removal of the pine needles from the forest floor appeared to have had a pronounced effect on the growth of the timber:

"A 55-year-old stand of pine was found in Worcester County [Md.] divided into two parts by a county road. This stand, like many others in the locality, had come up after the Civil War, on an abandoned field. The owner had needed only a portion of the needles to carry on his trucking and so he had allowed the county road to act as a dividing line. On one side he raked 'shats' each year; on the other side the stand was

allowed to remain intact. All other conditions were relatively the same, age of stand, quality of soil, and number of trees per acre. In 1920 a one-quarter acre sample plot, in average conditions, was measured on each side of the county road, with the following significant results:

"Effect of regular removal of pine needles over a period of years. Figures on an acre basis. Stand 55 years old.

Character of treatment	: Number of trees	: Average : d.b.h., : inches	: Average : height of : dominants, : feet	: Total : cubic : feet	: Total : board : feet
Needles not removed	: 230	: 11.6	: 78	: 5,287	: 24,800
Needles removed	: 228	: 11.5	: 68	: 4,476	: 18,600

"It will be noted that the average diameter growth on the two plots is surprisingly close and that the number of trees is almost the same. It is in the height growth that the difference occurs. The constant removal of the needles has served to reduce the quantity of lumber which the soil can produce in a given number of years. The advantage in favor of leaving the 'shats' is 6,200 board feet in 55 years. At prevailing stumpage prices per acre, this is worth about \$62. In other words, the 'shats' have added over a dollar per acre per year to the value of the stand."

Three Logs Worth More than a Thousand Acres

In 1823 a thousand acres of fine white pine in Indiana County, Pa., at the headwaters of the west branch of the Susquehanna, were bought by George Smith for \$83 plus taxes. Smith put up sawmills and cut some of the timber; other owners followed and the tract finally came into the hands of the Clearfield Bituminous Coal Corporation. Under the direction of R. D. Tenkin, forester for the coal corporation, three white pine logs uncovered by the high water of 1924 were taken from the bed of an old splash dam used in the original Smith operation. These logs were in a splendid state of preservation and yielded 2,000 board feet of high quality lumber worth about \$240. Thus three logs plus one century practically equalled three times the value of a thousand acres of fine white pine.--From the Service Letter of the Pennsylvania Department of Forests and Waters.

Prizes Awarded for Grade-Marking Devices

An electrical grade-marking hammer, invented by E. R. Tidwell and L. A. Durocher of the Edward Hines Yellow Pine Co., Lumberton, Miss., was awarded the first prize of \$500 in the contest conducted by the Southern Pine Association for the best suggestion of practical methods and devices for the grade marking of lumber. The prize-winning device is operated by an electric current of either 110 or 220 volts. It weighs but four or five pounds. Pressure of the operator's thumb on the push button causes the piston, which has a steel die swivel at the end, to slide from the magazine and strike the end of the lumber. Provision is made for fastening the die to the end of the piston in a dovetailed slot, permitting quick changes of dies in marking lumber of different grades. The device has a self-inking arrangement, so that the brand is both indented and inked on the lumber.

The second prize, \$250, was awarded to J. J. Rettmer of the Long-Well Lumber Co., Lufkin, Tex., for a device operated entirely by hand. Pressure on the handle causes the die to shoot out with sufficient force to indent the lumber. There is an automatic inking device which flips out of the way when it comes in contact with the lumber.

The third prize of \$100 went to J. B. Wilkinson of the Helen White Lumber Co., of Clyde, Miss., and C. L. Rice of Laurel, Miss. Their machine weighs only a few pounds and fits conveniently into the hand. It is operated with a low-pressure air system, requiring only 30 to 50 pounds of air. When the operator depresses the valve lever by gripping it with his hand, a simple valve mechanism causes the die to strike one sharp blow on the end of the lumber. The discs are quickly interchangeable, but are held firmly in place with dovetail slots. The die holder is so balanced that it will move from either side, so that as accurate an imprint can be made on a board that is not squarely trimmed as on one that is.

Three prizes of \$50 each were won by H. W. Whited, vice president of the Frost Lumber Industries, Inc., Nacogdoches, Tex., R. E. Cassibry, resident manager of the Finkbine Lumber Co., D'Lo, Miss., and E. W. Morton of New Orleans.

The winners of the first prize state that the Edward Hines Yellow Pine Co. has decided to install their electrical grade-marking hammer in all of its mills, and that arrangements have been made for manufacturing this machine in large quantities.

Pulp Makers Grow Timber

The Meade Pulp and Paper Co. of Ohio grows a part of its cottonwood requirements on bottom lands purchased or rented for that purpose. In some cases it has paid as much as \$50 an acre. In one instance it rented 11 acres at an annual rate of \$7.50 an acre. After planting, this land was cultivated for two or three years. In spite of an allowance of \$10 an acre for restoring the tract to its original condition at the close of the rental period and 6 per cent interest on all costs, the final cost of the pulpwood was enough less than the current prices for similar wood in the open market to net the company about \$300 for the entire transaction.

The Finch-Pruyn Co. started out as a lumber company but a number of years ago went into the pulp and paper business. They have gradually acquired lands and now have enough, in New York, Vermont, and Maine, to supply almost entirely the requirements of their mill. They employ a forester and are making an intensive working plan. Their cutting is now done under a rough selection system. In spite of a long series of expenditures to acquire lands, which have come out of earnings, they have been paying satisfactory dividends.

The Champion Fiber Co. of North Carolina has done a good bit of planting in an experimental way. It maintains its own protective organization, and has been encouraging the extension of yellow poplar on its cuttings. Its forestry work is done in cooperation with the Appalachian Forest Experiment Station.

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Survey of Retail Lumber Industry of Idaho

A survey of the retail lumber industry of Idaho made recently by the University of Idaho School of Forestry and the U. S. Forest Service in cooperation showed 192 retail establishments in the State, with an investment of \$4,500,000. Some 450 people are employed and the payroll amounts to about \$700,000. Annual sales of lumber from these yards amount to 73,000,000 board feet, chiefly western yellow pine, larch-fir, coast fir, and hemlock. Sales of lath amount to 12,000,000 pieces; posts, 700,000; and shingles, 57,000,000. The posts and shingles are all reported as cedar. A little more than half the lumber, 70 per cent of the lath, 97 per cent of the posts, and 5 per cent of the shingles are produced in the State. Practically all the rest comes from Washington and Oregon.

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A forest research department has been organized by the California White and Sugar Pine Manufacturers' Association. It will be headed by S. R. Black, manager of the California Forest Protective Association. The first major study of the department will deal with the prevention of fire in cut-over lands where reforestation is being attempted. Logging methods calculated to encourage second growth will be investigated at the same time. Finally, a thorough study is to be made of the rate of growth and yield per acre of the second growth of all the important lumber-producing varieties of California. Every known method of producing a second growth of trees, Mr. Black says, will be given a trial.

How the Virginia Woods Looked to the First Explorers

"This Island has many goodly woods, and full of Deer, Conneys, Hares, and Fowl, even in the midst of Summer, in incredible abundance. The woods are not such as you find in Bohemia, Moscovia, or Hyrcania, barren and fruitless, but the highest and reddest Cedars of the world, far bettering the Cedars of the Azores, of the Indias, or of Libanus; Pines, Cypressses, Sassafras, the Lentisk, or the tree that beareth the Mastic; the tree that beareth the rind of black Cinnamon, of which Master Winter brought from the Straits of Magellan; and many other of excellent smell and quality."-- From Hakluyt's "Voyages," as quoted in the Oxford Book of English Prose.

Long Live the Tree Planters

"The Great Khan [Emperor of the Tartars, lived 1216-1296] caused trees to be planted at both sides of the public roads, giving shade in summer, and when the ground was covered with snow they pointed out the road."

"He also appointed officers of rank to see that above are properly arranged, and the roads kept in order."

"The Great Khan is the more disposed to plant trees because astrologers tell him that those who plant trees are rewarded with long life."-- From The Travels of Marco Polo, quoted in the Newsletter of the Maryland Department of Forestry.

FOREIGN NOTES

Reforestation Associations Proposed by French Official

The necessity of reforestation as a means of checking floods in the Paris district is discussed in an interview by H. Jean Durand, Secretary of Agriculture of France, published in Bois et Resineux, in part as follows:

"It is my ambition to contribute to the limit of my power to the reestablishment of our forests, to a general reforestation which will regulate the flow of our streams and put an end to the inundations, of which deforestation is the sole cause.....For this I want to encourage the organization throughout France of reforestation associations which the Government will aid as much as possible. These associations should have a very low membership fee, say one franc, in order to enlist large numbers in the enterprise. And, by the way, reforestation is one of the fields most favorable for concerted action by the rural and the city population.

.....The Government will furnish these societies with planting stock, which the forest service can supply in sufficient quantity to meet the needs for some time.....Also in order to avoid failures and disappointments, the Government will be prepared to supply the most detailed information on the establishment of plantations in the places where reforestation is contemplated.

The problem may be summed up in this fashion: Reforestation on the high mountains means irrigation for the slopes and drainage for the bottom lands."

Subsidies for Reforestation in France

(Notice reproduced from Bois et Resineux, February 21, 1926)

Timberland owners who are reforesting their lands are informed that the Government encourages and subsidizes the work of reforestation carried on by individuals and communities.

Subsidies are accorded in the form of planting stock and seeds. To obtain these, it is sufficient to address an application to the inspection service of the Department of Forests and Waters, on a special form obtainable from forest officers.

Such applications should be submitted before July 15 for fall plantings and before December 15 for spring plantings.

Tax exemptions or reductions are granted for 30 years to proprietors who reforest.

Those desiring to carry on reforestation work and who make application to the inspector of forests and waters will be furnished information in regard to species to plant, according to altitude and the conditions of the planting site, the method to be used in planting (sowing or planting), and the time when planting should be done.

Forest Planting in England

The Forestry Department of Great Britain, which came into being only in 1920, has planted 53,200 acres, and is planning gradual increases in the acreage planted each year, beginning with 22,000 acres this season. In addition to Crown lands amounting to 120,000 acres, the department has acquired 288,000 acres, of which it is planned to plant 150,000 acres by the end of 1929. The department also cooperates with local authorities and private individuals in planting work.

The aim of the department is to establish within the present century permanent forest industries, providing employment to a considerable body of foresters and other workers; and at the same time to provide the nation with a portion of its timber needs, which now require the importation yearly of wood and wood pulp worth approximately \$300,000,000. Much of the land used for planting is waste land which the Government holds under long leases--from 300 to 999 years.

Pines and Potatoes

How German foresters get a profit from land newly planted to forest trees is told by Assistant State Forester Hale of New Hampshire in a report published in the News Letter of the New Hampshire Department of Forestry. In parts of the Rhine Valley Mr. Hale found the foresters growing agricultural crops among newly transplanted seedlings. In the town forest of Eberstatt near Darmstadt, for example, Scotch pine seedlings are planted one yard by one foot apart and two weeks later potatoes are planted between the rows of trees. From 10 to 15 acres are worked in this manner each year. The potato crop yields about five times the amount planted, or 50 bushels per acre, and is sold to the highest bidder. Besides bringing in money through the sale of the potatoes this system helps keep out weeds, without in any way injuring the young trees. After two years the pines are well established and the potato raising is discontinued.

Association for Reforestation of the Basque Country

At a combined meeting of scientific, business, and sportsmen's associations at Bayonne, France, a program was adopted for reforestation in the Basque region and an association organized for carrying on the work under the designation of "Association for Reforestation of the Basque Country." The program of the association includes the following:

Compilation of laws protecting reforestation

Checking excessive or dangerous clearing

Prevention of fire

Furnishing financial assistance

Coordinating the results of experience and research

Propaganda in favor of reforestation

Directing and assisting individuals in reforestation work

Undertaking the reforestation of certain sites, privately owned or communal land.

The efforts of the association are to be localized by the organization of cantonal sections, and sections to carry on school and information work.

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The Province of Ontario saved \$32,000,000 in 1924 and 1925 by using hydroplanes for forest fire protection, according to the estimate of Hon. James Lyons, former minister of lands and forests for the province. Mr. Lyons recently told the public accounts committee of the Ontario Legislature that in 1923 the Province spent \$1,100,000 on forest fire inspection and had a fire loss of 2,120,000 acres, and that in 1925 it spent the same amount for protection but lost only 10,000 acres of timber by fire.

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Forestry is being practiced in Honduras under men who have had their training under somewhat the same conditions in India. The Government has committed itself to expenditures of considerable sums -- now about \$50,000 annually.--From letter of Professor S. J. Record of Yale in the Yale Forest School News.

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Compulsory Fire-Line Duty in Sweden

Extracts from an article by Erik Geete, State Inspector of Forests, Sarna, Sweden, in *The World's Health*.

In Sweden every able-bodied man between the ages of 18 and 60 has to serve in the event of forest fire. If a fire is observed by anyone in a forest, and he is unable to extinguish it by ordinary means, he is obliged by law to report it at once to the chief of the nearest fire unit and the people in the immediate neighborhood. All must answer the fire summons and report at once at an appointed place, taking with them the necessary equipment. If the local fire unit finds itself unable to cope with the fire, the chief must ask the governor of the Province for reinforcements. No one serving with a fire unit can leave without the consent of the chief. When the fire has been quelled, the chief has to detail a certain number of people to act as guards who remain on the spot. No employer can stand in the way of any of his employees who are called up.....

Violation of this law [Law of Jan. 1, 1915] entails very heavy fines. The law also defines the duties of citizens...and the penalties incurred by people found guilty of carelessness or who refuse to cooperate with the rescue work.....

Before the fire squads are disbanded, the chief of the fire unit checks up the names of those present, and makes a list of the absentees in order to prosecute them if they cannot justify their absence.

During the last 48 years 139,484 hectares of forest have been burned over in the State forests of Sweden, an average of 2,916 hectares a year, or 0.03 per cent of the total forest area. On privately owned forest lands the yearly average for the last 10 years is estimated at about 3,868 hectares, or 0.015 per cent. The State forests are in outlying districts and thus less accessible than those in private ownership, which accounts in part for the greater percentage of loss in the State forests.

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Australian Fires

Special correspondence to the *American Lumberman*, appearing in the March 13 number, states that Australia had not for years had such bush and forest fires as ravaged her countryside during the past summer. Heat was excessive. In New South Wales and Victoria the fires covered many square miles, and not only wiped out extensive farms and squattages but licked up immense stands of valuable timber, including several pine

plantations. One of these, in Victoria, is estimated as a loss to the Government of \$300,000 and many years of effort. These pine plantations, which were largely in the nature of experiments, were promising well. In the dry heat of Australia pines brought from more humid climates burn with terrible swiftness.

Severe Fire Laws in Southern France

Extremely severe laws for the prevention of forest fires are in force in Maures and L'Islerel, Mediterranean provinces of France, Assistant State Forester Hale of New Hampshire reports. During certain periods of the year the use of fire is forbidden within 200 metres of forest or brush land except with special authorization. Owners of forest or brush land can be required by adjacent proprietors to clear fire lines 2 to 5 metres in width. Railroads also have to clear and maintain fire lines. The incendiary firing of cut timber is punished by imprisonment, and the penalty for an incendiary fire in a forest may be imprisonment for life.

A Swiss Community Forest

The forest of the town of Sarnegg has a total area of 1,346 hectares, managed by a forester. During the periods 1864-1868 and 1920-1924 a portion of this forest amounting to 897 hectares gave the following returns:

			1864-8	1920-24	
Gross receipts per hectare			59.16	217.11 francs	
"	"	" cubic meter			
		exploited	15.67	41.64	"
Net	"	hectare	38.91	78.76	"
"	"	cubic meter exploited	10.31	14.92	"

Battles and Floods

It is reported that as a result of the devastation of the watershed of the Meuse during the battles on the heights of the Meuse region, floods in the river have become greater and more frequent. Since 1920 the river has been in flood four times. Reforestation is advocated as a means of reducing the danger.

Chemical Utilization of Turpentine

(Extract from a paper by G. Dupont, technical director of the Pine Institute, Bordeaux, read at the Fifth Chemical Congress of Industrial Chemists of France.)

At the time of the Russo-Japanese War two products of turpentine, "borneol" and "camphor," emerged from the laboratory to compete with natural camphor, of which Japan has a monopoly. This was a happy circumstance for the celluloid industry. [Camphor and soluble guncotton are essential constituents of celluloid.--Ed.] Since that time, it is true, the Japanese producers have reacted powerfully and have sometimes triumphed over the synthetic products, but improvement in methods is giving these products a more and more favorable position in the market. Besides, as the realization on synthetic camphor amounts to only 50 per cent of what is theoretically possible, there is room for considerable progress in the production of synthetic camphor.

Also the use of terpene in pharmacy has made a good beginning. Terpene is easily made by direct hydration of turpentine with the aid of acids.

Finally, the manufacture of "terpineol," derived immediately from terpene, is becoming more and more important among manufactures of synthetic perfumes. In addition to "terpineol," the perfume industry uses some of its derivatives or the derivatives of "borneol" with a different odor, finer and more penetrating, especially the acetates and the formiates of "bornyle" and "terpenyle."

These industrial products are only a very small fraction of those which chemistry will obtain in the future as a result of further study of the possibilities of turpentine.

For the industries actually in operation Bordeaux turpentine gives the best returns. Also, contrary to what is generally thought, of the two ordinary constituents of turpentine "nopinene" gives much better results than "pinene."

On account of the oxidation of the turpentine, it is desirable to treat it as soon as possible and therefore to locate the industries which use it near the place of production. For this reason the manufacture of borneol and camphor and of terpene, terpineol, and their derivatives is already being carried on in the region of the Landes.

PERSONALS

Richard T. Fisher, director of the Harvard Forest, has been elected a fellow of the Society of American Foresters. This honor, the highest that can be conferred by the profession of forestry in America, has been awarded to only nine foresters since the grade was established in 1900.

Dean Franklin Moon of the New York State College of Forestry, Syracuse University, was appointed by Governor Smith of New York to represent the State at the World's Forestry Congress in Rome. This is the dean's sabbatical year, and after the congress he will travel extensively in Europe to study methods of forestry instruction.

George W. Peavy, dean of the Forest School of the Oregon Agricultural College, went to the World's Forestry Congress as a representative of the Oregon State Board of Forestry.

Samuel T. Dana, director of the Northeastern Forest Experiment Station, represented the Forest Service at the World's Forestry Congress in Rome. He will spend four months in Europe, visiting the more important forest experiment stations in Austria, Czechoslovakia, Germany, Norway, Sweden, and Finland. William N. Sparhawk of the Washington office of the Forest Service was delegated to the congress by the Society of American Foresters. Other members of the service in attendance were John D. Guthrie, assistant district forester in charge of public relations of the North Pacific District, and George M. Hunt, chief of the section of wood preservation in the Forest Products Laboratory.

Roy L. Hogue of the Interior Lumber Co., Jackson, Miss., past-president of the Southern Forestry Congress, attended the World's Forestry Congress and before returning to this country will devote some time to a study of European forestry practice.

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Prof. Robert Craig, Jr., was accredited to the World's Forestry Congress as an official representative of the State of Michigan, the University of Michigan, and the Society of American Foresters. After the congress and the International Forestry Exhibition at Milan Professor Craig plans to visit representative forests and the leading forest schools of Switzerland, France, and Germany.

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Prof. J. A. Ferguson of the Pennsylvania State Forest School has been appointed to the faculty of the Yale Forest School as substitute for Prof. H. H. Chapman during 1926-27, Professor Chapman's sabbatical year. Professor Ferguson is the nominee for secretary-treasurer of the Yale Forest School Alumni Association for the coming year.

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Ralph F. Wilcox has been appointed assistant State forester of Indiana. After graduation from the Pennsylvania School of Forestry Mr. Wilcox served for a time as assistant district forester in Pennsylvania. He will take active charge of field forestry work in Indiana.

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Hon. John D. Clarke was elected president of the New York State Forestry Association at the annual meeting of the association on February 25. Mr. Clarke's place on the executive committee was filled by the election of Hon. Francis R. Masters, of the Taconic Park Commission. A vice presidency was given to T. C. Luther of Mechanicsville and Saratoga, the only individual tree planter of the State who has reached the record of a million trees a season for three consecutive seasons.

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De Courcy W. Thom was recently elected president of the Maryland Forestry Association. W. McCulloh Brown was reelected secretary.

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Paul R. Dunn is the newly appointed assistant to the State forester of Missouri in charge of the development of a forest fire control plan for the Missouri Ozarks. Mr. Dunn is a graduate of Iowa State College.

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William H. Stoneburner, formerly supervisor of the Unaka National Forest, on April 1 took up the duties of a district forester with the Virginia State Forestry Department.

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Doctor von Monroy, a German forester, is visiting the United States under a scholarship of the General Education Board to obtain information about American forest conditions, forest organization, and logging methods.

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The Allegheny Section of the Society of American Foresters has elected the following officers for the coming year: chairman, C. P. Wilbur, State forester of New Jersey; vice chairman, George H. Wirt, chief forest fire warden of Pennsylvania; secretary-treasurer, H. R. Condon, forester of the Pennsylvania Railroad.

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A. A. Doppel, M. F. Cornell 1925, was recently appointed extension forester for the State of Connecticut. His headquarters will be at the Storrs Agricultural Experiment Station, Storrs, Conn.

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D. B. DeMerritt, at present an instructor in the University of Maine, has accepted the position of extension forester of Louisiana. He will take up the duties of his new position in the early summer.

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James E. Davis, a recent graduate of the forestry department of the New York State College of Agriculture, is serving on the staff of the college as an extension forester.

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James L. Averell, a graduate student at the Yale Forest School, has been awarded the American-Scandinavian Fellowship and will sail on June 1 for a year's study of forestry at Stockholm, Sweden.

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H. Norton Cope, recently assistant supervisor of the Coconino National Forest, on April 1 took charge as supervisor of the Alabama-Benning group of national forests.

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J. A. Groenewald, M. F. Cornell 1923, is now a member of the Forest Service of British South Africa with headquarters at Pietersburg.

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J. E. Aughinbaugh, a member of this year's graduating class of the New York State Forest School, has been appointed assistant instructor in the forestry department of Cornell University.

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Late Announcement - Forester Wanted

A forester is wanted from July 10 to August 28 to handle forestry work at Camp Wauwepex for Boy Scouts on Deep Lake, Wading River, Long Island. There is a good salary attached, and the location is ideal.

John B. Cuno of the Washington office of the Forest Service would like to hear from foresters interested in this opening.

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